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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,877	10/29/2003	David James Lloyd	71360 CCD	9093

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EXAMINER	
WYSZOMIERSKI, GEORGE P	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 11/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/696,877	LLOYD, DAVID JAMES	
	Examiner	Art Unit	
	George P. Wyszomierski	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) 12-18 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-11 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2/12/04, 5/20/05. 9/12/05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-11, drawn to a process, classified in class 148, subclass 565.

II. Claims 12-18, drawn to a sheet article, classified in class 148, subclass 415.

2. The inventions are distinct, each from the other because:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by a materially different process, such as a laser remelting process.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

3. During a telephone conversation with Christopher Dunham, attorney of record on November 3, 2005 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-11. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12-18 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 4 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Neiheisel et al. (U.S. Patent 4,456,812).

Neiheisel discloses directing a laser beam to selected portions of a metal sheet material in order to modify an original property of the material. No melting appears to take place in the prior art process, and the treatment appears to affect the property (magnetic core loss) through the entire thickness of the material. Thus, all aspects of the claimed invention are held to be fully disclosed by Neiheisel et al.

6. Claims 1, 2 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Statnikov (U.S. patent 6,338,765).

Statnikov discloses directing ultrasonic energy to a plurality of spaces on the surface of a metal sheet, which results in a modification of a property of the metal without melting. With respect to claim 7, Statnikov column 10, lines 38-60 discloses treatment consistent with the limitations of this claim. Thus, the claimed invention is held to be fully disclosed by Statnikov.

7. Claims 1, 2, 3, 6 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by the Hofmann Journal of Materials Processing Technology article.

Hofmann discloses local heat-treatment of an aluminum alloy sheet with a laser beam in order to change a property of the treated material from that of an aged condition to that of a solution heat treated condition. Thus, all aspects of the claimed invention are held to be fully disclosed by the Hofmann article.

8. Claims 1, 2, 4, 7 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Bellouard et al. (U.S. Patent 6,669,794).

Bellouard discloses treating predefined zones of a metal sheet, by heating those zones with a laser beam to a temperature less than the melting point in order to change a property, e.g. to recrystallize the zone. At least one embodiment of Bellouard appears to treat the sheet through its entire thickness; see Bellouard Figure 13, no. 136. Thus, all aspects of the claimed invention are held to be fully disclosed by Bellouard et al.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1, 2, 5, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frohlich (U.S. Patent 5,073,212).

Frohlich discloses selectively applying a pulsed heat source such as a laser beam to a given area of a metal object in order to locally change the metallurgical structure of the area.

The prior art process is done in a way to avoid melting of the treated area; see Frohlich column 4, lines 32-34. With respect to claims 5 and 8, Frohlich column 6, lines 52-63 discloses effects consistent with these claims.

Frohlich does not specify that the treated material is a "sheet" as required by the instant claims. However, Frohlich column 6, lines 63-68 indicates that the prior art process is ideal for treating materials of thin cross-sectional dimensions, which would include treatment of a sheet. Thus, a prima facie case of obviousness is established between the disclosure of Frohlich and the presently claimed invention.

11. Claims 1, 2, 3, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamdi et al. (U.S. Patent 5,272.015).

Hamdi discloses ion implantation of an aluminum alloy material in order to harden the surface of the material. Handi differs from the claimed invention in that Hamdi does not specify treating a sheet material, and Hamdi is directed to a process that results in uniform distribution as opposed to the presently claimed "plurality of mutually spatially separated zones" of treatment. However,

a) The Hamdi process would be applicable to hardening of material of any given shape, including the presently claimed sheet material, i.e. the action of the ion beam upon the surface of the material would be the same regardless of the overall shape.

b) In Hamdi's discussion of the prior art, particularly Hamdi column 1, lines 20-45, Hamdi indicates that prior art ion implantation processes are in fact regionally focused, so that only regions directly in line with the ion beam are treated. It thus would have been known to one of skill in the art how to perform an ion implantation process that results in the zone treatment as presently claimed.

Thus, a prima a prima facie case of obviousness is established between the disclosure of Hamdi et al. and the presently claimed invention.

12. Claims 1, 2, 4, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans (U.S. patent 5,350,467).

Evans discloses a zone treatment of only a desired zone of metal articles such as fasteners, e.g. using a laser, in a manner that does not appear to melt any of the treated zones. With respect to instant claim 11, the prior art process includes a step of subjecting the zones to a liquid spray such as water in order to harden the treated areas; see Evans column 4, lines 25-33. Evans does not disclose treating a "sheet" of material in such a manner, and does not specify treatment such that the original property is transformed through its entire thickness as recited in claim 4. These differences are not seen as resulting in a patentable distinction between the prior art and the claimed invention because clearly the effects of the treatment done in the prior art would be dependent upon the geometry of the part being treated. If one were to select a zone sufficiently thin in cross section to treat as done by Evans, then this zone would both meet a standard definition of the term "sheet", and would be treated throughout its entire thickness due to its relatively thin cross-sectional area. Thus, a prima facie case of obviousness is established between the disclosure of Evans and the presently claimed invention.

13. Claims 1, 2, 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer et al. (U.S. Patent 6,364,972).

Bauer discloses selectively hardening a portion of a metal screw by selectively heating the desired portion followed by differential quenching using a fluid such as water. Bauer does

not disclose treatment of a sheet material by such a process, as required by the instant claims. However, Bauer column 2, lines 45-47 suggests that the prior art technique can be applied to any desired portions of a material, with the same resultant effects upon those portions. It thus would have been an obvious expedient for one of ordinary skill in the art to treat selected portions of a sheet in the manner as described by Bauer et al.

14. Claims 1, 2, 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over DD Patent 246569.

The DD '569 patent discloses spot hardening of a metal material by use of an electron beam, in a manner that prevents any melting of the workpiece surface. The prior art does not specify treatment of a sheet in this manner, nor does the prior art specify transforming a property through its entire thickness as required by instant claim 4. However, based on the "Substance of the Invention" section of the prior art, it is clear that one of ordinary skill in the art would adjust parameters of the prior art process (e.g. beam intensity) to result in treatment of the desired portion(s) of the material. Further, the prior art process indicates that "greater hardening depth" is achieved in this manner, which would include a depth completely through the thickness of the treated material provided that the thickness is sufficiently small. Thus, a prima facie case of obviousness is established between the disclosure of DD 246569 and the presently claimed invention.

15. Claims 3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellouard et al.

Bellouard, described in item no. 8 supra, does not specify the treatment of aluminum, and does not specify the particular transformations of instant claims 5 and 6. However,

a) Bellouard column 11, lines 10-15 indicates that the prior art method is amenable to being performed upon aluminum-containing alloys.

b) The Bellouard treatment is for the purpose of achieving one or more of a variety of local changes to the microstructure of an object, as set forth in columns 2-3 of Bellouard. The transformations as recited in claims 5 and 6 would be indicative of such changes to a metallic microstructure.

Thus, the disclosure of Bellouard et al. is held to create a prima faice case of obviousness of the presently claimed invention.

16. The remainder of the art cited on the attached PTO-892 and 1449 forms is of interest. This art is held to be no more relevant to the claimed invention than the art as applied in the rejections, supra.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (571) 272-1252. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (571) 272-1244. Effective July 15, 2005, all patent application related correspondence transmitted by facsimile must be directed to the new central facsimile number, (571)-273-8300. This new Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GEORGE WYSZOMIERSKI
PRIMARY EXAMINER
GROUP 1700

GPW
November 7, 2005